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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,652	08/02/2003	Arne W. Ballantine	END9-2000-0086-US2	3570
30449	7590	09/29/2004	EXAMINER	
SCHMEISER, OLSEN + WATTS			TSAI, H JEY	
SUITE 201			ART UNIT	
3 LEAR JET			PAPER NUMBER	
LATHAM, NY 12033			2812	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/632,652	BALLANTINE ET AL.	
	Examiner	Art Unit	
	H.Jey Tsai	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-43 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 15-43 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/2/03</u> . | 6) <input type="checkbox"/> Other: ____. |

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 15-17, 19, 21-24, 26-28, 30-38, 40-43 are rejected under 35 U.S.C. § 102(e) as being anticipated by LaFollette et al. 6,610,440.

LaFollette et al. discloses a method for forming an electrochemical structure within an integrated circuit comprising the step; of:

providing a semiconductor wafer, col. 18, lines 30+,

forming a layer 30 of electronic devices on the semiconductor wafer, wherein the layer of electronic devices includes at least one electronic device, fig. 3+ and col. 20, lines 15+,

forming N wiring levels within an interconnect structure of the integrated circuit- wherein the N wiring levels are disposed on the layer of electronic devices, wherein N is at least 1, wherein the N wiring levels are denoted as wiring level 1 (30, SiO₂), wiring level 2 (38),, fig. 3+,,

forming a first conductive metalization 46 and a second conductive metalization 47 (or 49) within the N wiring levels,

forming at least one battery 44' within the wiring levels (1 and 2, frist and second level or ribbon connection in fig. 3 can be replaced with thin film interconnect, see col. 25, lines 20+, that is I=1 through K....., wherein I is selected from the group consisting

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of 1, 2,N, wherein K is selected from the group consisting of I, I+1,.... and N), wherein the first conductive metalization 46 conductively couples a first electrode 34" of the at least one battery 44' to the at least one electronic device 59, 59', wherein the second conductive 47 representation conductively couples a second electrode 40" of the battery to the at least one electronic device, and wherein the first and second conductive metalization are totally external to the interior of the at least one battery, fig. 4+, col. 25, lines 55+,

forming a trench (cavity) 42' within ILD layer 38", col. 23, lines 1+,

depositing electrolyte layer,

forming first and second battery electrode (anode and cathode) with Zn, col. 13, lines 38+.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections lithium phosphorous oxynitride set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18, 20, 25, 29, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over LaFollette et al. 6,610,440 as applied to claims 15-17, 19, 21-24, 26-28, 30-38, 40-43 above, and further in view of Bates et al. 5,561,004 and Wolk et al. 2001/0000744.

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LaFollete et al. teaches forming an electrochemical structure of battery within an integrated circuit but does not teach using lithium phosphorous oxynitride as an electrolyte. However, Bates et al. teaches at col. 2, lines 15-25, using lithium phosphorous oxynitride as an electrolyte 26 for a battery and Wolk et al. teaches at para. 35 and 90, using a diffusion battery layer for a battery.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified above reference by using lithium phosphorous oxynitride and forming a diffusion barrier layer as suggested by Bates and Wolk et al. because lithium phosphorous oxynitride can be formed as a layer structure on the cathode that is compatible with the semiconductor process and forming a diffusion layer to prevent corrosion formed on the cathode electrode.

Any inquiry of a general nature or clerical matters or relating to the status of this application or proceeding should be directed to the Group customer service whose telephone number is (703) 308-4357.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. Jey Tsai whose telephone number is (571) 272-1684. The examiner can normally be reached on from 7:00 Am to 4:00 Pm., Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on (571) 272-1679.

The fax phone number for this Group is (703) 872-9306.

hjt

9/27/04



H. Jey Tsai
Primary Examiner
Patent Examining Group 2800